

AP Diffusion & Osmosis Lab

PROCEDURE 1 – p.S56

Perform “step 2” procedures: Cut 3 gel cubes ranging from 5x5x5mm to 20x20x20mm. Calculate SA & Volume. **Predict** order of diffusion rate. Time the diffusion rates & record the results in a data table. Conclude if your predictions were correct.

PROCEDURE 2 – p. S58 – S59 Work with a partner & share results.

Peel a single layer of red onion, place on microscope slide. Focus with microscope to see cells clearly; record initial observations. One partner uses a pipette to put NaCl on slide, then use paper towel to draw liquid through cells. Observe the cells **as you are doing this** and record observations. Other partner does same procedures but uses plain water.

Describe **what** happened and **why** using the following vocabulary (isotonic, hypotonic, hypertonic, water potential, osmosis, plasmolysis, turgor-pressure, cell wall)

All work above should be submitted (**not** in a report format) by the due date specified.

INDEPENDENT INVESTIGATION

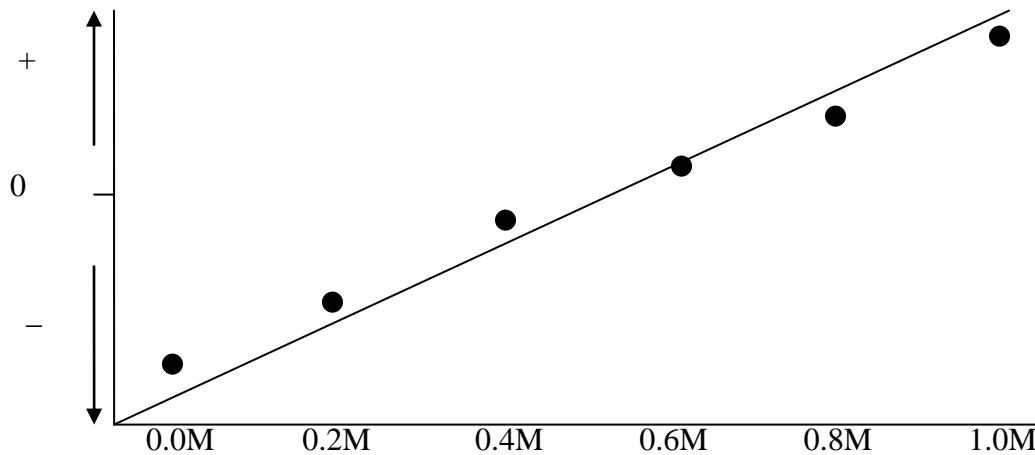
You will choose two of the following plant samples and test for differences in osmosis.

Carrot Sweet Potato Red-Skin Potato Brown-Skin Potato Zucchini

The samples will be placed in the following solutions:

Pure water 0.2M sucrose 0.4M sucrose 0.6M sucrose 0.8M sucrose 1.0M sucrose

1. Cut 6 samples (of 2 plants) of **equal** size, 4cmx1cm. Make sure no skin is on them. Weigh each sample & record mass in a properly designed data table.
2. Place one of each sample into different concentration cups that you should label accordingly. You'll have 6 cups total, each with 2 different plant samples. Record time. Wait for 30-40min.
3. Remove samples from solutions. **Blot dry with paper towel**. Weigh & record mass of each.
4. Plot your **change in mass** data on a graph like the one below that will provide you with a trend line.



LAB REPORT:

Report ONLY on your independent investigation.

Title: Appropriate to your plants & experiment

Introduction: Background on osmosis in plants & how this is significant to their biology, purpose of the lab, followed by the *null* hypothesis.

Methods: 3rd-person, past tense, all procedures as you did them.

Results: Data table(s) & graph(s), appropriately titled, labeled, correct units, etc. Summarize the accurately.

Analysis: perform a t-test to test for any significant difference between the 2 samples, leading to a decision about the null hypothesis. Explain why your results do or do not make sense according to nutritional content of the plant samples (YOU NEED TO RESEARCH THIS!!!) For example, if one is loaded with carbs/starches and the other plant is mainly water... you should be able to explain how osmosis should have affected both samples.

Conclusions: Discuss as per report guidelines.